

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of March 25, 2008 is respectfully requested.

By this Amendment, claims 7-8 have been cancelled, and new claim 9 has been added and is currently pending in the application. No new matter has been added by these amendments.

On pages 2-3 of the Office Action, the Examiner rejected claims 7-8 under 35 U.S.C. § 102(b) as being anticipated by Takayuki et al. (JP 8-115673). Further, on pages 3-4 of the Office Action, the Examiner rejected claims 7-8 under 35 U.S.C. § 103(a) as being unpatentable over Takayuki in view of Do et al. (US 2002/0039665). However, as indicated above, claims 7-8 have been cancelled and replaced with new claim 9. For the reasons discussed below, it is respectfully submitted that the new claim is clearly patentable over the prior art of record.

Independent claim 9 recites a plasma display device, which includes a plurality of discharge cells arranged to show a single color or multiple colors, and phosphor layers arranged such that colors of the phosphor layers correspond to the colors of the discharge cells, with the phosphor layers being arranged to be excited by ultraviolet rays for emitting light. Claim 9 also recites that a composition formula of at least one phosphor layer of the phosphor layers is $Ba_{(1-x-y)}Sr_yMgAl_{10}O_{17}:Eu_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$. Further, claim 9 recites that the at least one phosphor layer is formed of a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C.

Takayuki discloses a blue phosphor expressed by the formula $Ba_{1-x}Eu_xMgAl_{10}O_{17}$ with $0.05 \leq x \leq 0.5$. However, Takayuki does not disclose *a plasma display device in which at least one phosphor layer has a composition formula of $Ba_{(1-x-y)}Sr_yMgAl_{10}O_{17}:Eu_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$, as required by independent claim 9, because Takayuki does not disclose the quantities $Ba_{(1-x-y)}$ or Sr_y . In this regard, on page 2 of the Office Action the Examiner indicates that the formula of Takayuki corresponds to the formula of the present invention when $y=0$. However, it is noted that claim 9 recites that $0.1 \leq y \leq 0.30$. Accordingly, Takayuki does not disclose a plasma display device in*

which at least one phosphor layer has a composition formula of $\text{Ba}_{(1-x-y)}\text{Sr}_y\text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$, as required by independent claim 9.

Further, Takayuki does not disclose *a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C*, as required by independent claim 9. However, on page 3 of the Office Action the Examiner asserts that limitations directed to a process are not afforded patentable weight without a showing of an unobvious difference between the claimed product and the prior art. In this regard, it is noted that pages 3, 6 and 7, as well as Table 1 of the original specification discloses that a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C, allows for a plasma display panel to have an increased brightness and a reduced weakening of the brightness due to the repair of oxygen deficiencies as compared to that of the prior art, thus constituting an unobvious difference over the prior art.

Do discloses a plasma display panel which includes a phosphor expressed by the formula $\text{Ba MgAl}_{10}\text{O}_{17}:\text{Eu}$. However, Do does not disclose a plasma display device in which at least one phosphor layer has a composition formula of $\text{Ba}_{(1-x-y)}\text{Sr}_y\text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$, as required by independent claim 9.

Therefore, as neither of the Takayuki and Do references discloses a plasma display device in which at least one phosphor layer has a composition formula of $\text{Ba}_{(1-x-y)}\text{Sr}_y\text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$, as required by independent claim 9, it is respectfully submitted that the combination of the Takayuki and Do references does not disclose or suggest a plasma display device in which at least one phosphor layer has a composition formula of $\text{Ba}_{(1-x-y)}\text{Sr}_y\text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$, wherein x has a value such that $0.01 \leq x \leq 0.20$, and y has a value such that $0.1 \leq y \leq 0.30$, as required by independent claim 9.

Further, it is noted that neither of the Takayuki and Do references discloses *a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C*, as required by claim 9. In this regard, it is first noted that on page 3 of the Office Action, the Examiner asserts that paragraph 55 of Do discloses annealing phosphor particles at a temperature between 600 °C and 1000 °C in an oxidizing atmosphere. However, it is noted that Do only discloses annealing phosphor particles in air, a vacuum, inert gas, or a reducing atmosphere, and does not disclose or suggest annealing phosphor particles in an oxidizing atmosphere, as required by independent claim 9.

Therefore, for the reasons presented above, it is believed apparent that the present invention as recited in independent claim 9 is not disclosed or suggested by the Takayuki reference and the Do reference taken either individually or in combination. Accordingly, a person having ordinary skill in the art would clearly not have modified the Takayuki reference in view of the Do reference in such a manner as to result in or otherwise render obvious the present invention of independent claim 9.

On pages 4-5 of the Office Action, the Examiner rejected claims 7-8 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of Aoki et al. (US 6,960,309). Further, on pages 5-6 of the Office Action, the Examiner rejected claims 7-8 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of Aoki in view of Do.

Claim 1 of Aoki recites a plasma display panel including a phosphor made of either $Ba_{1-x}MgAl_{10}O_{17}:Eu_x$ or $Ba_{(1-x-y)}Sr_yMgAl_{10}O_{17}:Eu_x$, but does not recite *a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C*, as required by independent claim 9. However, on page 3 of the Office Action the Examiner asserts that limitations directed to a process are not afforded patentable weight without a showing of an unobvious difference between the claimed product and the prior art. As indicated above, the original specification discloses that a phosphor which has been fired in atmospheric air at a temperature ranging from

800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C, allows for a plasma display panel to have an increased brightness and a reduced weakening of the brightness due to the repair of oxygen deficiencies as compared to that of the prior art, which is an unobvious difference over the prior art, particularly in view of the fact that Aoki does not claim or disclose a phosphor which is fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C, as required by claim 9.

Further, as discussed above, the Examiner asserts that paragraph 55 of Do discloses annealing phosphor particles at a temperature between 600 °C and 1000 °C in an oxidizing atmosphere. However, it is noted that Do only discloses annealing phosphor particles in air, a vacuum, inert gas, or a reducing atmosphere, and does not disclose or suggest annealing phosphor particles in an oxidizing atmosphere, as required by independent claim 9.

Therefore, it is respectfully submitted that independent claim 9 is patentably distinct from claim 1 of Aoki, either alone or in combination with Do, as neither Aoki or Do discloses or suggests a phosphor which has been fired in atmospheric air at a temperature ranging from 800 °C to 1500 °C, fired in a reducing atmosphere at a temperature ranging from 1100 °C to 1500 °C, and fired in an oxidizing atmosphere at a temperature ranging from 600 °C to 1000 °C, as required by independent claim 9.

Therefore, it is respectfully submitted that independent claim 9 is clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice to that effect is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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